

David S. Goldstein

Curriculum Vitae
March, 1998

Born in Newark, NJ, June 23, 1948.

Family

Married 11/1972 to Minka Krasow of Danbury, Conn. Children: Yakira, born 11/1974; Samuel, born 6/1976; Zvi, born 4/1978; Mona, born 5/1982; Joseph, born 1/1990.

Address and phone

7711 Fontaine Street
Potomac, Maryland 20854
(301) 299-2201
e-mail: daveg@his.com

Clinical Neuroscience Branch
NINDS, NIH
Building 10 6N252
10 Center Drive, MSC-1424
Bethesda, Maryland 20892
(301) 496-2103, (301) 496-4297
FAX: (301) 480-0736, (301) 402-0180
e-mail: daveg@box-d.nih.gov

Education, Employment, and Appointments

Weequahic High School, Newark, NJ, 1962-1965.
Phillips Academy, Andover, Mass, 1965-1966.
Yale College, New Haven, CN, 1966-1970. Graduated Cum Laude with Honors with Exceptional Distinction in Psychology.
Johns Hopkins School of Medicine, Baltimore, MD, 1970-1976. MD, PhD in Behavioral Sciences. Dissertation: Instrumental Cardiovascular Conditioning.
Summer exchange fellow in cardiovascular physiology, Department of Physiology, Oxford University, Oxford, England, 1971.
Medical internship and residency, University of Washington Affiliated Hospitals, Seattle, WA, 1976-1978.
Clinical Associate, National Heart, Lung, and Blood Institute, Bethesda, MD, 1978-1982.
Medical Staff Fellow, National Heart, Lung, and Blood Institute, Bethesda, MD, 1982-1983.
Senior Investigator, National Heart, Lung, and Blood Institute, Bethesda, MD, 1983-1990.
Consultant Physician, The Washington Clinic, Washington DC, 1985-1994.
Attending Physician, Clinical Staff, The Clinical Center, NIH, Bethesda, MD, 1983-date.
Promotion (to GM-14 from GM-13), 5/1989.
Promotion (to GM-15 from GM-14), 3/1992.
Senior Investigator, National Institute of Neurological Disorders and Stroke, Bethesda, MD, 1990-date.
Clinical Associate Professor of Medicine (Cardiology), Georgetown University School of Medicine, Washington, DC, 1989-date.
Chief, Clinical Neurochemistry Section, Clinical Neuroscience Branch, National Institute of Neurological Disorders and Stroke, Bethesda, MD, 1992-date.

Certifications and Authorizations

Board certified in internal medicine, 1979-date.

Authorized User for Human Use of Radioactive Materials ($[^3\text{H}]$ -norepinephrine, $[^3\text{H}]$ -isoproterenol, $[^3\text{H}]$ -epinephrine, $[^{13}\text{N}]$ -ammonia, 6- $[^{18}\text{F}]$ fluorodopamine), NIH Radiation Safety Committee, NIH, 1984-date.

Certified in Advanced Cardiac Life Support, American Heart Association, 1983-date.

Investigational New Drug Applications #33,866 (6- $[^{18}\text{F}]$ fluorodopamine); #21,220 (yohimbine hydrochloride); #31,182 (L-DOPA); #40,747 ($[^{13}\text{N}]$ -ammonia).

Licensed to practice medicine in the District of Columbia, #14525 (Exp. 12/1995)

Licensed to practice medicine in the State of Maryland, #D23433, 1979-date.

Memberships: Societies

Member, American College of Physicians, 1984-1986.

Member, American Federation for Clinical Research, 1985-1991.

Member, American Association for the Advancement of Science, 1995-1996.

Member, American Society of Hypertension, 1989-1991.

Member, American Society of Clinical Investigation, 1990-date.

Member, American Heart Association, 1992-date.

Member, International Society for the Investigation of Stress, 1992-date.

Member, American Autonomic Society, 1992-date.

Member, American Physiological Society, 1996-date.

Fellow, American College of Physicians, 1986-date.

Fellow, Council for High Blood Pressure Research, American Heart Association, 1996-date.

Fellow, Council on Circulation, American Heart Association, 1996-date.

Memberships: Committees and Boards

Ad Hoc Member, Clinical Trials Review Committee, NHLBI, 1984, 1985. Consultant, Review Branch, Division of Extramural Affairs, NHLBI, 1986.

Chairperson, session on catecholamines and sympathetic activity in cardiovascular disorders, 6th International Catecholamine Symposium, Jerusalem, Israel, 6/1987.

Member, Intramural Research Board, National Heart, Lung, and Blood Institute, 1988-1990.

Member, Advisory Committee, Symposium on Sympathetic Function and Human Hypertension, International Society of Hypertension, Sapporo, Japan, 5/1988.

Member, International Advisory Board, Satellite Conference on Stress and Behavioural Medicine, International Association for the Interdisciplinary Study of Higher Nervous Functions, Prague, Czech Republic, 7/1994.

Member, Intramural Research Board, National Institute on Alcohol Abuse and Alcoholism, 1987-1995.

Executive Secretary and Member, Organizing Committee, Sixth Symposium on Catecholamines and Other Neurotransmitters in Stress, Smolenice, Czechoslovakia, 5/1995.

Member, Tenure and Promotion Review Committee, National Institute of Neurological Disorders and Stroke, 1993-1996.

Member, Council on Circulation, American Heart Association, 1992-date.

Member, Council for High Blood Pressure Research, American Heart Association, 1992-date.

Member, Editorial Board, Homeostasis, 9/1993-date.

Member, Editorial Board, Stress, 1995-date.

Executive Secretary and Member, Organizing Committee, Seventh Symposium on Catecholamines and Other Neurotransmitters in Stress, Smolenice Castle, Slovakia, 6/1998.

Chairperson, Advisory Board, The Foundation for Catecholamine Research, 1997-date.

Honors

Cum Laude Society and National Honor Society, 1965-1966.
 Dean's List, Yale College, 1966-1970. Eugene Meyer Memorial Scholarship, Yale College, 1966-1970. Graduated Cum Laude with Honors with Exceptional Distinction in Psychology, Yale College, 1970.
 Recipient, Angier Prize for Research in Psychology, Yale College, 1970.
 Main lecture, Sociedad Argentina de Investigacion Clinica, Buenos Aires, Argentina, 11/1988.
 Elected, American Society of Clinical Investigation, 5/1990.
 Chairperson, "Clinical Aspects of Stress-Induced Changes in Neurotransmitter and Hormone Systems," Fifth Symposium on Catecholamines and Other Neurotransmitters in Stress, Smolenice, Czechoslovakia, 6/1991
 Chairperson, symposium, "Sympathetic Activity and Essential Hypertension," 7th International Catecholamine Symposium, Amsterdam, The Netherlands, 6/1992.
 Visiting Professor in Medicine, Faculty of Health Sciences, Ben-Gurion University of the Negev, 1986.
 Elected to Membership, American Society of Clinical Investigation, 5/1990.
 Chairperson, "Clinical Aspects of Stress-Induced Changes in Neurotransmitter and Hormone Systems," Fifth Symposium on Catecholamines and Other Neurotransmitters in Stress, Smolenice, Czechoslovakia, 6/1991
 Chairperson, symposium, "Sympathetic Activity and Essential Hypertension," 7th International Catecholamine Symposium, Amsterdam, The Netherlands, 6/1992.
 Visiting Professor, Chaim Sheba Medical Center, Tel Ha-Shomer, Israel, 6-8/1993.
 Pfizer Lecturer, Clinical Research Institute of Montreal, 5/94.
 Member, Scientific Committee, First World Congress on Stress, Bethesda, MD, 10/1994.
 Recipient, Merit Performance Cash Award, 1989, 1990, 1991, 1992, 1993, 1994, 1996.
 Recipient, Willem Laufberger Medal, Czech Academy of Sciences, Prague, Czech Republic, 7/1994.
 Merit Pay bonus recipient, 1985-1994, 1996.
 Recipient, NIH Merit Award, 1994.
 Plenary lecturer, Sixth Symposium on Catecholamines and Other Neurotransmitters in Stress, Smolenice Castle, Czechoslovakia, 6/1995.
 Elected to Fellowship, Council for High Blood Pressure Research and Council on Circulation, American Heart Association, 1996.

Listings

Listed in American Men and Women of Science, 1988-date.
 Listed in Who's Who in Science and Engineering, 1996.
 Listed in Who's Who in Health and Medical Services, 1991-date.
 Listed in Who's Who in the East, 1991-date.
 Listed in Who's Who in the World, 1995-date.

Post-doctoral researchers

Arno Zaritsky, MD (Children's Hospital, Wash., DC, 1986)
 Reuven Zimlichman, MD (Israel, 1984-1987)
 Peter Chang, MD (Holland, 1988-1989)
 Moshe Garty, MD (Israel, 1987-1988)
 David Hovevey-Sion, PhD (Israel, 1986-1988)
 C.Y. Chai, PhD (Taiwan, 1989)
 Katalin Szemerédi, PhD (Hungary, 1986-1990)
 Marye Tamrat, MD, PhD (Howard University School of Medicine, 1989-1990)
 Maria Ines Armando, PhD (Argentina, 1989-1992)

Efrat Wolfovitz, MD (Israel, 1991-1992)
 John Finberg, PhD (Israel, 1991-1992)
 Jacques Lenders, MD (Holland, 1991-1992)
 Anna Deka-Starosta, MD (Poland, 1986-1994)
 Gal Yadid, PhD (Israel, 1991-1994)
 John Stuhlmuller, MD (USA, 1993-1995)
 Marta Weinstock, PhD (Israel, 1994-1995).
 Graeme Eisenhofer, PhD (New Zealand, 1985-1988, 1991-date)
 Yu-Fei Duan, PhD (Taiwan and USA, 1994-date)
 Stephen G. Kaler, MD (USA, 1995-date)
 Olga Tjurmina, PhD (Russia, 1996-date)
 Cees Tack, MD, PhD (The Netherlands, 1997-date)
 Karel Pacak, MD (Czechoslovakia, 1990-1995, 1997-date)
 Shengting Li (China, 1998-date)

Invited Presentations

Invited participant, "Biochemical measures of reactivity," Conference on Stress, Reactivity and Cardiovascular Disease, University of Pittsburgh and NHLBI, 1984
 Invited speaker, "Catecholamines in plasma and cerebrospinal fluid: Sources and meanings," Brain Peptides and Catecholamines in Cardiovascular Regulation in Normal and Disease States, University of Houston College of Pharmacy, Houston, TX, 1/1986
 Invited lecture, "What an Internist Should Know about the Sympathetic Nervous System," George Washington University Medical Center, Washington, DC, 10/1986.
 Invited participant, NIH Conference on the Mechanisms of Physical and Emotional Stress, Bethesda, MD 11/1986
 Invited lecture, "Plasma Catecholamine Kinetics in Stress & Hypertension," University of Maryland Hypertension Center, Baltimore, Md, 11/1986
 Invited lecture, "New Approaches in the Clinical Assessment of Sympathetic Activity using Plasma Catecholamines, DOPA, and DHPG," Catecholamine Club, FASEB, 3/1987
 Invited lectures, "Plasma levels of DOPA, DHPG, and catecholamines in the clinical assessment of sympathetic activity," the Hypertension Society, and "Estimation of cardiac norepinephrine release and neuronal uptake in man," the Cardiovascular Division, Mayo Clinic, Rochester, MN, 5/1987
 Invited lectures, "Plasma levels of DOPA, DHPG, and catecholamines in the clinical assessment of sympathetic activity," and "Estimation of cardiac norepinephrine release and neuronal uptake in man," Division of Cardiology, Toronto General Hospital, Toronto, Ontario, Canada, 5/1987
 Invited speaker, "Plasma catecholamine responses to stress in essential hypertension," Fourth Symposium on Catecholamines and Other Neurotransmitters in Stress, Smolenice Castle, Czechoslovakia, 6/1987
 Invited lecture, "Source and Meaning of Endogenous DOPA," Department of Neurology, USUHS, Bethesda, MD, 9/1987
 Invited speaker, "Stress and Cardiovascular Disease," Pennsylvania Claims Association, Philadelphia, PA, 1/1988
 Invited lecture, "Physiology of Hypertension: Possible Mechanism for ECMO Hypertension," 4th Annual Children's Hospital National Medical Center ECMO Symposium, Snowmass, CO, 2/1988
 Cardiology Grand Rounds, "New clinical approaches for assessing cardiac sympathetic function," Yale School of Medicine, New Haven, CN, 4/1988
 Invited lecture, "Plasma Catecholamines in Human Hypertension," Symposium on Sympathetic Function and Human Hypertension, International Society of Hypertension, Sapporo, Japan, 5/1988.

- Invited speaker, "Implications of measurements of plasma catechols in hypertension," symposium on "Blood Pressure Mechanisms and the Sympathetic Nervous System--from Molecules to Man," American Society of Hypertension, New York City, NY, 6/1988
- Suburban Hospital Seminar, "Stress, the Sympathoadrenomedullary System, and Disease," Suburban Hospital, Bethesda, MD, 9/1988
- Invited lecture, "Clinical applications of plasma levels of catechols in hypertension," American Association for Clinical Chemistry, 10/1988.
- Invited lecture, "Clinical assessment of sympathetic nervous system activity," Sociedad Argentina de Investigacion Clinica, Buenos Aires, Argentina, 11/1988
- Invited lectures, "Stress-Induced Activation of the Sympathetic Nervous System," and "New Techniques for Clinical Assessments of Sympathetic Activity," Major Conference Series, Department of Psychiatry, University of Michigan, Ann Arbor, Michigan, 2/1989
- Invited lecture, "The sympathetic nervous system and hypertension," Howard University School of Medicine, Washington, DC, 2/1989
- Invited presentation, "Assessment of sympathetic activity using new drug probes and PET scanning," Gerontology Research Center, NIA, Baltimore, MD, 6/1989
- Invited seminar, "New ideas about stress and the sympathoadrenomedullary system," Department of Physiology & Biophysics, Georgetown University School of Medicine and Dentistry, Washington, DC, 11/1989
- Clinical Center Grand Rounds, "Heartstrings: New techniques for clinical assessment of the sympathetic nervous system," Clinical Center, NIH, Bethesda, MD, 12/1989
- Invited lecture, "Norepinephrine kinetics in hypertrophic cardiomyopathy," Cardiology Branch, NHLBI, 1/1990
- Invited lecture, "Neurotransmitters and stress," 21st Annual Meeting, Association for Applied Psychophysiology and Biofeedback, Washington, DC, 3/1990
- Invited lecture, "Plasma dopa levels and sympathetic nervous activity," 13th Meeting of the International Society for Hypertension, Montreal, Quebec, Canada, 6/1990
- Faculty, "Catecholamines," Gordon Conference, 7-8/1990
- Invited lecture, "Sympathetic activity and reactivity in essential hypertension: Application of a yohimbine challenge test," Irvine H. Page International Hypertension Research Symposium, National Hypertension Association, Baltimore, MD, 9/1990
- Invited participant, Hypertension Collegium 1990, Laguna Niguel, CA, 10/1990
- Invited lecture, "Clinical Applications of Monitoring Catechols," Waters Neuroscience Symposium, Rockville, MD, 12/1990
- Invited panelist, "The Transit 'Hot Seat'. A National Transit Labor/Management Conference. Miami, FL, 2/1991
- Invited lecture, "Positron emission tomographic scanning of cardiac sympathetic innervation and function," for the Symposium, "Advances in Integrative Neurocirculatory Physiology," FASEB, Atlanta, GA, 4/1991
- Invited lecture, "Clinical uses of catechols in the assessment of sympathoadrenal activity in stress and disease," Fifth Symposium on Catecholamines and Other Neurotransmitters in Stress, Smolenice, Czechoslovakia, 6/1991
- Invited presentation, "Stress and hypertension: Is there a sympathoadrenal link?" Annual meeting, The Pavlovian Society of North America, Baltimore, MD 9/1991
- Co-chairperson, Scientific Sessions, Second International Conference on the Shy-Drager Syndrome, Vanderbilt University, Nashville, TN, 10/1991
- Invited lecture, "Catecholaminergic systems, stress, and cardiovascular disease. FAES, NIH, Bethesda, MD, 10/1991
- Invited lecture, "Stress and the Heart," Division of Heart and Vascular Diseases, National Heart, Lung, and Blood Institute, 11/1991
- Neurology Grand Rounds: "Heartstrings: Neurocardiology as a New Discipline in Medicine," NINDS, NIH, 1/1992.
- Invited lecture, symposium, "Sympathetic Activity and Essential Hypertension," 7th International Catecholamine Symposium, Amersterdam, The Netherlands, 6/1992.

- Invited presentation, "F-18 dopamine as a neuronal marker in the heart," Institute for Clinical PET, Fourth International PET Conference & Research Symposium," Washington, DC, 10/1992.
- Invited presentation, "New clinical techniques to assess regional sympathoneural activity," Third International Symposium on Autonomic Disorders, Nashville, TN, 10/1992.
- Invited presentation, "Clinical applications of catecholamine levels," Research Conference, Department of Anesthesiology and Critical Care Medicine, The Johns Hopkins Hospital, Baltimore, MD, 12/1992.
- Invited lecture, "Stress as a scientific idea," National Institute of Alcohol Abuse and Alcoholism, 2/1993.
- Invited speaker, "Cardiac neuroimaging with PET," Cardiology Department, Uniformed Services University of the Health Sciences, Bethesda, MD, 2/1993.
- Neurology Grand Rounds, National Naval Medical Center, Bethesda, MD, 3/1993.
- Invited lecture, "Stress and science," Biological Psychiatry Branch, NIMH, 4/1993.
- Invited speaker, "Biochemical assessment of sympathetic nervous system activity," NHLBI Workshop, Clinical Neurobiology of Blood Pressure Regulation, Bethesda, MD, 6/1993.
- Invited speaker, "Sympathetic nervous system and hypertension," Israeli Society of Internal Medicine, Jerusalem, Israel, 6/1993.
- Invited lecture, "Is there a third peripheral catecholaminergic system," Department of Pharmacology, The Rappaport Faculty of Medical Sciences, Haifa, Israel, 7/1993.
- Invited seminar leader, "Stress as a scientific idea," Department of Psychiatry, Chaim Sheba Medical Center, Tel Ha-Shomer, Israel, 7/1993.
- Invited lecture, "Clinical PET scanning of cardiac sympathetic innervation and function," Department of Neurology, Division of Cerebrovascular Neurology, The Johns Hopkins Hospital, 12/1993.
- Invited participant, "Mind-Body-Health Interactions," MacArthur Foundation Research Network on Mind-Body Interactions, Clearwater, FL, 2/1994.
- Invited lecture, "Stress, catecholamines, and psychosomatic medicine," Division of Behavioral Biology, Department of Psychiatry and Behavioral Sciences, The Johns Hopkins Medical Institutions, Baltimore, MD, 2/1994.
- Invited lecture, "Stress, catecholamines, and cardiovascular disease: theoretical and practical issues," Institut de recherches cliniques de Montreal, Montreal, Canada, 5/1994.
- Invited lecture, "A homeostatic theory of stress and distress," The CIANS/ISBM Conference on Stress and Behavioural Medicine, Prague, Czech Republic, 7/1994.
- Invited lectures, "Anatomical and functional visualization of cardiac sympathetic innervation in humans," and "Stress as a scientific idea," Leiden Working Group on Cardiovascular Research, Leiden, The Netherlands, 7/1994.
- Invited lecture, "PET scanning of cardiac sympathetic innervation and function," University of Nijmegen, Nijmegen, The Netherlands, 7/1994.
- Invited lecture, "PET scanning of cardiac sympathetic innervation and function," Hadassah Hospital, Ein Karem, Israel, 7/1994.
- Invited lecture, "PET scanning of cardiac sympathetic innervation and function," Beilinson Hospital, Petach Tikve, Israel, 7/1994.
- Invited lecture, "Catecholamines and sympathetic activity in clinical and experimental hypertension," Chaim Sheba Medical Center, Tel Ha-Shomer, Israel, 7/1994.
- Invited lecture, "Using PET to access cardiac sympathetic innervation and function," NIH Research Festival '94 Symposia, 9/1994.
- Invited lecture, "Fluorodopamine PET scanning: The good, the bad, and the ugly," PET Department, NIH Clinical Center, 9/1994.
- Invited lecture, "Clinical assessment of sympathetic responses to stress," First World Congress on Stress, Bethesda, MD, 10/1994.
- Invited lecture, "Neuronal and non-neuronal sources of dopamine in the periphery," 5th International Conference on Peripheral Dopamine, Kyoto, Japan, 10/1994.

- Invited lecture, "PET scanning and clinical evaluation in neurocardiovascular disorders," Cardiology Department, National Naval Medical Center, 12/1994.
- Invited lecture, "Nonspecificity versus primitive specificity of stress responses" and "Stress, catecholamines, and cardiovascular disease," Sixth Symposium on Catecholamines and Other Neurotransmitters in Stress, Smolenice Castle, Czechoslovakia, 6/1995.
- Clinical Center Grand Rounds, "PET and neurochemical findings in patients with dysautonomia," National Institutes of Health, Bethesda, MD, 1/1996.
- Invited lecture, "Metabolic fate of the sympathoneural imaging agent 6-[¹⁸F]fluorodopamine in humans," Sixth International Conference on Peripheral Dopamine, Camerino, Italy, 6/1996.
- Invited lecture, "The sympathetic nervous and adrenomedullary hormonal systems: Differential responses to stressors," The Neuroscience and Endocrinology of Fibromyalgia, National Institutes of Health, Bethesda, MD, 7/1996.
- Clinical Center Grand Rounds, "Heartstrings: Visualizing sympathetic innervation and function in patients with neurocardiologic disorders," National Institutes of Health, Bethesda, MD, 6/1997.
- NINDS Clinical Grand Rounds, "Clinical diagnosis of sympathetic neurocirculatory failure," National Institutes of Health, Bethesda, MD, 9/1997.
- Clinical Center Grand Rounds, "Molecular and Integrative Medicine: Toward Rapprochement," National Institutes of Health, Bethesda, MD, 1/1998.
- Lecture, "The third catecholamine system: Sources of dopamine in the human kidney," Laboratory of Kidney and Electrolyte Metabolism, NHLBI, National Institutes of Health, Bethesda, Maryland, 3/1998.
- Lecture, "Neurogenic autonomic nervous system dysfunction," Neuroscience Nurse Internship Program, NINDS, National Institutes of Health, Bethesda, Maryland, 3/1998.

Other professional activities

- Private medical practice of internal medicine with emphasis on hypertension, neurocardiology, and stress medicine.
- Author, "Stress, Catecholamines, and Cardiovascular Disease," Oxford University Press, 1995.
- Consultant, Catecholamine Assay Facility, Covance, Inc. 1989-date.
- Co-Founder, The Work Stress Institute, 1989.
- Course Director, "Stress: Conceptual, Practical, and Health Policy Issues," FAES Graduate School at NIH, 1994-1995.
- Editor (with G. Eisenhofer and R. McCarty), Catecholamines: Bridging Basic Science with Clinical Medicine. Academic Press, 1998.
- President, Eighth International Catecholamine Symposium, Asilomar, CA, 10/1996.
- Chair, Advisory Group, Foundation for Catecholamine Research, 1997-date.
- Editor, Dysautonomias: Clinical Physiology and Pathophysiology of the Autonomic Nervous System. New York: Marcel Dekker, Inc. (in press).

Career interests

- Develop neurocardiology as a clinical discipline in medicine
- Introduce and test concepts of integrative medicine, based on physiology and pathophysiology of catecholaminergic systems
- Direct world-class catecholamine assay facility

Research Summary

Original Articles

Before 1981

1. Goldstein DS, Fink DJ, Mettee DR. Cognition of arousal and actual arousal as determinants of emotion. *J Pers Soc Psychol* 21:41-51, 1972.
2. Goldstein DS, Harris AH, Brady JV. Sympathetic adrenergic blockade effects upon operantly conditioned blood pressure elevations in baboons. *Biofeedback Self-Regul* 2:93-105, 1977.
3. Goldstein DS, Ross, RS, Brady JV. Biofeedback heart rate training during exercise. *Biofeedback Self-Regul* 2:107-125, 1977.
4. Goldstein DS, Harris AH, Brady JV. Baroreflex sensitivity during operant blood pressure conditioning. *Biofeedback Self-Regul* 2:127-138, 1977.
5. Goldstein DS. Instrumental cardiovascular conditioning: A review. *Pav J Biol Sci* 14:108-127, 1979.
6. Goldstein DS. The electrocardiogram in stroke: Relationship to pathophysiologic type and comparison with prior tracings. *Stroke* 3:253-259, 1979.

1981

7. Goldstein DS. Plasma norepinephrine in essential hypertension: A study of the studies. *Hypertension* 3:48-52, 1981.
8. Goldstein DS, Feuerstein GZ, Izzo JL Jr, Kopin IJ, Keiser HR. Validity and reliability of liquid chromatography with electrochemical detection for measuring plasma levels of norepinephrine and epinephrine in man. *Life Sci* 28:467-475, 1981.
9. Goldstein DS, Harris AH, Izzo JL Jr, Turkkan J, Keiser HR. Plasma catecholamines and renin activity during operant blood pressure conditioning in baboons. *Physiol Behav* 26:33-37, 1981.
10. Goldstein DS, Feuerstein GZ. Improved reliability of the liquid chromatographic-electrochemical detection assay technique for measuring plasma epinephrine. *Clin Chem* 27:508, 1981.
11. Goldstein DS. Plasma norepinephrine during stress in essential hypertension. *Hypertension* 3:551-556, 1981.
12. Goldstein DS. Plasma norepinephrine as an indicator of sympathetic neural activity in clinical cardiology. *Am J Cardiol* 48:1147-1154, 1981.
13. Goldstein DS, Feuerstein GZ, Kopin IJ, Keiser HR. Validity of liquid chromatography with electrochemical detection for measuring plasma dopamine. *Clin Chim Acta* 117:113-120, 1981.

1982

14. Goldstein DS, Spanarkel M, Pitterman A, Toltzis R, Gratz E, Epstein S, Keiser HR. Circulatory control mechanisms in vasodepressor syncope. *Am Heart J* 104:1071-1075, 1982.
15. Goldstein DS, Dionne R, Sweet J, Gracely R, Brewer HB Jr, Gregg R, Keiser HR. Circulatory, plasma catecholamine, cortisol, lipid, and psychological responses to a real-life stress (wisdom tooth extractions): Effects of diazepam sedation and of inclusion of epinephrine with the local anesthetic. *Psychosom Med* 44:259-271, 1982.
16. Goldstein DS, Horwitz D, Keiser HR. Comparison of techniques for measuring baroreflex sensitivity in man. *Circulation* 66:432-439, 1982.

1983

17. Goldstein DS. Plasma catecholamines in essential hypertension: An analytical review. *Hypertension* 5:86-99, 1983.
18. Goldstein DS, Lake CR, Chernow B, Ziegler MG, Coleman MD, Taylor AA, Mitchell JR, Kopin IJ, Keiser HR. Age-dependence of hypertensive-normotensive differences in plasma norepinephrine. *Hypertension* 5:100-104, 1983.
19. Goldstein DS, Nurnberger J Jr, Gershon ES, Simmons S, Polinsky R, Keiser HR. Effects of injected sympathomimetic amines on plasma catecholamines and circulatory variables in man. *Life Sci* 32:1057-1063, 1983.
20. Goldstein DS. Modified sample preparation for high-performance liquid chromatographic-electrochemical assay of urinary catecholamines. *J Chromatog* 275:174-177, 1983.
21. Goldstein DS, McCarty R, Polinsky RJ, Kopin IJ. Relationship between plasma norepinephrine and sympathetic neural activity. *Hypertension* 5:552-559, 1983.
22. Goldstein DS. Arterial baroreflex sensitivity, plasma catecholamines, and pressor responsiveness in essential hypertension. *Circulation* 68:234-240, 1983.
23. Goldstein DS. Commentary. *Hypertension* 5:402-403, 1983.
24. Goldstein DS, Horwitz D, Keiser HR, Polinsky RJ, Kopin IJ. Plasma 3H-l-norepinephrine, 14C-d-norepinephrine, and 3H-d,l-isoproterenol kinetics in essential hypertension. *J Clin Invest* 72:1748-1758, 1983.
25. Goldstein DS, Levinson P, Keiser HR. Plasma and urinary catecholamines during the human ovulatory cycle. *Am J Obstet Gynecol* 146:824-829, 1983.

1984

26. Goldstein DS, Lake CR. Plasma norepinephrine and epinephrine levels in essential hypertension. *Fed Proc* 43:57-61, 1984.
27. Lake CR, Chernow B, Goldstein DS, Glass DG, Coleman M, Ziegler MG. Plasma catecholamine levels in normal subjects and in patients with secondary hypertension. *Fed Proc* 43:52-56, 1984.

28. Goldstein DS. Plasma catecholamines in clinical studies of cardiovascular disease. *Acta Physiol Scand Suppl.* 527:39-41, 1984.
29. Koch BM, Galioto F, Goldstein DS, Kelleher J. Physical fitness in children with hemophilia. *Arch Phys Med* 65:324-326, 1984.
30. Goldstein DS, Keiser HR. Pressor and depressor responses after cholinergic blockade in man. *Am Heart J* 107:974-979, 1984.
31. Koch B, Luban NLC, Galioto FM Jr, Rick ME, Goldstein D, Kelleher JF Jr. Changes in coagulation parameters with exercise in patients with classic hemophilia. *Am J Hematol* 16:227-233, 1984.
32. Kopin IJ, Zukowska-Grojec Z, Bayorh M, Goldstein DS. Estimation of intrasynaptic norepinephrine concentrations at vascular neuroeffector junctions in vivo. *Naunyn-Schmiedeberg's Arch Pharmacol* 325:298-305, 1984.
33. Dionne R, Goldstein DS, Wirdzek PR, Keiser HR, Dubner R. Effects of diazepam premedication and epinephrine-containing local anesthetic on cardiovascular and plasma catecholamine responses to oral surgery. *Anesthes Analg* 1984;63:640-646.
34. Goldstein DS, Stull RW, Zimlichman R, Levinson PD, Smith H, Keiser HR. Simultaneous measurement of DOPA, DOPAC, and catecholamines in plasma by liquid chromatography with electrochemical detection. *Clin Chem* 30:815-816, 1984.
35. Insel TR, Aloji JA, Goldstein DS, Wood JH, Jimerson DC. Plasma cortisol and catecholamine responses to intra-cerebroventricular administration of CRH to rhesus monkeys. *Life Sci* 34:1873-1878, 1984.
36. Goldstein DS, Stull R, Markey SP, Marks E, Keiser HR. Dihydrocaffeic acid: A common contaminant in the liquid chromatographic-electrochemical measurement of plasma catecholamines in man. *J Chromatog* 311:148-153, 1984.
37. Nurnberger JI, Simmons-Aling S, Kessler L, Jimerson S, Schreiber J, Hollander E, Tamminga CA, Nadi NS, Goldstein DS, Gershon ES. Separate mechanisms for behavioral, cardiovascular, and hormonal responses to dextroamphetamine in man. *Psychopharmacology* 84:200-204, 1984.

1985

38. Goldstein DS, Levinson PD, Zimlichman R, Pitterman A, Stull R, Keiser HR. Clonidine suppression testing in essential hypertension. *Ann Int Med* 102:42-48, 1985.
39. Goldstein DS, Keiser HR. Neural circulatory control in the hyperdynamic circulatory state syndrome. *Am Heart J* 109:387-390, 1985.
40. Feuerstein GZ, Goldstein DS, Ramwell PW, Zerbe RL, Lux WE Jr, Faden AI, Bayorh MA. Cardiorespiratory, sympathetic and biochemical responses to T-2 toxin in the guinea pig and rat. *J Pharmacol Exp Therap* 232:786-794, 1985.
41. Levinson PD, Goldstein DS, Munson PJ, Gill JR Jr, Keiser HR. Endocrine, renal, and hemodynamic responses to graded dopamine infusions in normal subjects. *J Clin Endo Metab.* 60:821-826, 1985.

42. Rittmaster RS, Cutler GB Jr, Sobel DO, Goldstein DS, Koppelman MCS, Loriaux DL, Chrousos GP. Morphine inhibits the pituitary-adrenal responses to ovine corticotropin releasing factor in normal subjects. *J Clin Endocrinol Metab* 60:891-895, 1985.
43. Keiser HR, Goldstein DS, Wade JL, Douglas FL, Averbuch SD. Treatment of malignant pheochromocytoma with combination chemotherapy. *Hypertension* 7 (Suppl I) I-18-I24, 1985.
44. Polinsky RJ, Goldstein DS, Brown RT, Keiser HR, Kopin IJ. Decreased sympathetic neuronal uptake in idiopathic orthostatic hypotension. *Ann Neurol* 18:48-53, 1985.
45. Goldstein DS, Zimlichman R, Stull R, Folio J, Levinson PD, Keiser HR, Kopin IJ. Measurement of regional neuronal removal of norepinephrine in man. *J Clin Invest* 76:15-21, 1985.
46. Haass M, Kopin IJ, Goldstein DS, Zukowska-Grojec Z. Differential inhibition of alpha-adrenoceptor-mediated pressor responses by rat atrial natriuretic peptide in the pithed rat. *J Pharmacol Exp Therap* 235:122-127, 1985.
47. Goldstein DS. Plasma norepinephrine in essential hypertension: The elusive measurement. *Trends Auton Pharmacol* 3:331-349, 1985.
48. Feuerstein GZ, Bayorh MA, Goldstein DS, Zerbe RL, Ramwell PW, Faden AI. Effects of nafazatrom on cardiovascular, sympathetic, and endocrine responses to hemorrhagic shock in conscious rats. *Circulatory Shock* 17:223-232, 1985.

1986

49. Goldstein DS, Bonner RF, Zimlichman R, Zahn TP, Cannon RO, III, Rosing DR, Stull R, Keiser HR. Indices of sympathetic vascular innervation in sympathectomized patients. *J Auton Nerv Sys* 15:309-318, 1986.
50. Udelsman R, Harwood JP, Millan MA, Chrousos GP, Goldstein DS, Zimlichman R, Catt KJ, Aguilera G. Functional corticotropin releasing factor receptors in the primate peripheral sympathetic nervous system. *Nature* 319:147-150, 1986.
51. Goldstein DS, Zimlichman R, Stull R, Keiser HR, Kopin IJ. Estimation of intrasynaptic norepinephrine concentrations in man. *Hypertension* 8:471-475, 1986.
52. Zimlichman R, Zimlichman S, Goldstein DS, Keiser HR. Intracellular free calcium in platelets of spontaneously hypertensive rats. *J Hypertension* 4:283-287, 1986.
53. Goldstein DS, Cannon RO III, Zimlichman R, Keiser HR. Clinical evaluation of impedance cardiography. *Clin Physiol* 6:235-252 1986.
54. Chadwick RS, Goldstein DS, Keiser HR. Application of a pulse wave theory to modulation of the human brachial arterial diastolic wave in aging and essential hypertension. *Am J Physiol* 151:H1-11, 1986.
55. Hargreaves KM, Dionne RA, Mueller GP, Goldstein DS, Dubner R. Naloxone, fentanyl and diazepam modify plasma beta-endorphin levels during surgery. *Clin Pharmacol Therap* 40:165-171, 1986.

56. Goldstein DS, Zimlichman R, Stull R, Keiser HR: Plasma catecholamine and hemodynamic responses during isoproterenol infusions in man. *Clin Pharmacol Therap* 40:233-238, 1986.
57. Goldstein DS, Stull R, Eisenhofer G, Sisson JC, Weder A, Averbuch SD, Keiser HR. Plasma levels of DOPA and catecholamines in patients with neuroblastoma or pheochromocytoma. *Ann Int Med* 105:887-888, 1986.
58. Eisenhofer G, Goldstein DS, Stull R, Keiser HR, Sunderland T, Murphy DL, Kopin IJ. Simultaneous liquid chromatographic determination of 3,4-dihydroxyphenylglycol, catecholamines, and 3,4-dihydroxyphenylalanine in plasma and their responses to inhibition of monoamine oxidase. *Clin Chem* 32:2030-2033, 1986.
59. Zimlichman R, Goldstein DS, Eisenhofer G, Stull R, Keiser HR. Comparison of norepinephrine and isoproterenol removal in the canine hindlimb and kidney. *Clin Exp Pharmacol Physiol* 13:777-781, 1986.

1987

60. Zimlichman R, Goldstein DS, Stull R, Folio CJ, Keiser HR. Dietary salt intake and the clonidine suppression test. *J Clin Pharmacol* 27:199-205, 1987.
61. Goldstein DS, Udelsman R, Eisenhofer G, Keiser HR, Kopin IJ. Neuronal source of plasma dihydroxyphenylalanine. *J Clin Endocrinol Metab* 64:856-861, 1987.
62. Turkkan JS, Goldstein DS. Production and reversal of DOCA/salt hypertension in intact primates. *Clin Exp Hyper* A9:125-140, 1987.
63. Imperato-McGinley J, Gautier T, Ehlers K, Zullo MA, Goldstein DS, Vaughan ED Jr. Reversibility of catecholamine induced dilated cardiomyopathy in a child with pheochromocytoma. *N Engl J Med* 316:793-797, 1987.
64. Troullos ES, Goldstein DS, Hargreaves KM, Dionne RA. Plasma epinephrine levels and cardiovascular response to high administered doses of epinephrine in local anesthesia. *Anesth Prog* 34:10-13, 1987.
65. Udelsman R, Norton JA, Jelenich SE, Goldstein DS, Linehan WM, Loriaux DL, Chrousos GP. Responses of the hypothalamic-pituitary-adrenal and renin-angiotensin axes and the sympathetic system during controlled surgical and anesthetic stress. *J Clin Endocrinol Metab* 64:986-994, 1987.
66. Eisenhofer G, Goldstein DS, Stull R, Ropchak TG, Keiser HR, Kopin IJ. Dihydroxyphenylglycol and dihydroxymandelic acid during intravenous infusions of noradrenaline. *Clin Sci* 73:123-127, 1987.
67. Zimlichman R, Goldstein DS, Zimlichman S, Keiser HR. Angiotensin II increases cytosolic calcium and stimulates catecholamine release in cultured bovine adrenomedullary cells. *Cell Calcium* 8:315-325, 1987.
68. Eisenhofer G, Ropchak TG, Stull RW, Goldstein DS, Keiser HR, Kopin IJ. Dihydroxyphenylglycol and intraneuronal metabolism of endogenous and exogenous norepinephrine in the rat vas deferens. *J Pharmacol Exp Ther* 241:537-553, 1987.

69. Eisenhofer G, Goldstein DS, Stull RW, Gold PW, Keiser HR, Kopin IJ. Dissociation between corticotropin and catecholamine responses to isoprenaline in humans. *Clin Exp Pharmacol Physiol* 14:337-341, 1987.
70. Goldstein DS, Zimlichman R, Kelly G, Stull R, Bacher TD, Keiser HR. Effect of ganglion blockade on cerebrospinal fluid norepinephrine. *J Neurochem* 49:1484-1490, 1987.
71. Hargreaves KM, Mueller GP, Dubner R, Goldstein DS, Dionne RA. Corticotropin releasing factor (CRF) produces analgesia in humans and rats. *Brain Res* 422:154-157, 1987.
72. Zimlichman R, Goldstein DS, Zimlichman S, Keiser HR. Effects of ouabain on cytosolic calcium in lymphocytes, platelets, and adrenomedullary cells. *J Hypertension* 5:605-609, 1987.
73. Ezra D, Laurindo FRM, Goldstein DS, Goldstein RE, Feuerstein G. Calcitonin gene-related peptide: A potent modulator of coronary flow. *Eur J Pharmacol* 137:101-105, 1987.
74. Udelsman R, Goldstein DS, Loriaux DL, Chrousos GP. Catecholamine-glucocorticoid interactions during surgical stress. *J Surg Res* 43:539-545, 1987.
75. Goldstein DS, Eisenhofer G, Sax FL, Keiser HR, Kopin IJ. Plasma norepinephrine pharmacokinetics during mental challenge. *Psychosom Med* 49:591-605, 1987.
76. Marks ES, Ohman P, Goldstein DS, Zamir N, Keiser HR. Atrial natriuretic factor and plasma catecholamines in rats with acute and chronic renal failure. In Brenner BM, Laragh JH (Eds) *Biologically Active Atrial Peptides*. New York: Raven, 1987, pp. 523-526.
77. Haass M, Zamir N, Goldstein DS, Kopin IJ, Zukowska-Grojec Z. Reduced increment in circulating atrial peptides after volume expansion in young spontaneously hypertensive rats. In Brenner BM, Laragh JH (Eds) *Biologically Active Atrial Peptides*. New York: Raven, 1987, pp. 512-515.

1988

78. Goldstein DS, Nadi NS, Stull R, Wyler AR, Porter RJ. Catecholamines and DOPA in epileptogenic and non-epileptogenic regions of the human brain. *J Neurochem* 50:225-229, 1988.
79. Goldstein DS, Eisenhofer G, Stull R, Folio CJ, Keiser HR, Kopin IJ. Plasma dihydroxyphenylglycol and the intraneuronal disposition of norepinephrine in humans. *J Clin Invest* 81:213-220, 1988.
80. Hovevey-Sion D, Harvey-White J, Kopin IJ, Goldstein DS. Measurement of homovanillic acid in small volumes of plasma using liquid chromatography with electrochemical detection. *J Chromatog* 426:141-147, 1988.
81. Eisenhofer G, Ropchak DS, Kopin IJ, Goldstein DS. Release, uptake, and intraneuronal disposition of newly-synthesized norepinephrine in rat vas deferens. *J Pharmacol Exp Ther* 245:81-88, 1988.
82. Levinson PD, Zimlichman R, Goldstein DS, Brewer HB Jr, Keiser HR. Metabolic and hemodynamic effects of antihypertensive treatment with ketanserin. *Am J Hyper* 1:245S-248S, 1988.

83. Zaritsky A, Lotze A, Stull R, Goldstein DS. Steady-state dopamine clearance in critically ill infants and children. *Critical Care Med* 16:217-220, 1988.
84. Goldstein DS, Brush JE Jr, Eisenhofer G, Stull R, Esler M. In vivo measurement of neuronal uptake of norepinephrine in the human heart. *Circulation* 78:41-48, 1988.
85. Goldstein DS, Eisenhofer G. Plasma catechols--What Do They Mean? *News Physiol Sci* 3:138-144, 1988.
86. Kagedal B, Goldstein DS. Catecholamines and their metabolites. *J Chromatog Biomed Appl* 429:177-233, 1988.
87. Averbuch SD, Steakley CS, Young RC, Gelmann EP, Goldstein DS, Stull R, Keiser HR. Malignant pheochromocytoma: Effective treatment with a combination of cyclophosphamide, vincristine, and dacarbazine. *Ann Int Med* 109:267-273, 1988.
88. Szemerédi K, Bagdy G, Stull R, Kopin IJ, Goldstein DS. Excessive sympathoadrenomedullary responsiveness to yohimbine in young spontaneously hypertensive rats. *Life Sci* 43:1063-1068, 1988.
89. Levinson PD, Zimlichman R, Goldstein DS, Brewer HB, Jr, Keiser HR. Antihypertensive therapy with ketanserin: Metabolic and hemodynamic effects. *J Cardiovasc Pharmacol* 12:384-389, 1988.
90. Eisenhofer G, Ropchak T, Nguyen H, Keiser HR, Kopin IJ, Goldstein DS. Source and physiological significance of plasma 3,4-dihydroxyphenylalanine in the rat. *J Neurochem* 51:1204-1213, 1988.
91. Garty M, Steinmetz Y, Goldstein DS, Rosenfeld JB. Species-dependent differences in recovery of 3,4-dihydroxybenzylamine in assays of plasma catecholamines. *J Chromatog* 430:123-127, 1988.
92. Szemerédi K, Bagdy G, Stull R, Calogero AE, Kopin IJ, Goldstein DS. Sympathoadrenomedullary inhibition by chronic glucocorticoid treatment in conscious rats. *Endocrinology* 123:2585-2590, 1988.
93. Eisenhofer G, Kirk KL, Kopin IJ, Goldstein DS. Simultaneous determination of endogenous catechols and exogenous 2- and 6-fluorinated catechols in tissue and plasma using liquid chromatography with electrochemical detection. *J Chromatog* 431:156-162, 1988.
94. Zimlichman R, Levinson PD, Kelly G, Stull R, Keiser HR, Goldstein DS. Derivation of urinary dopamine from plasma dihydroxyphenylalanine. *Clin Sci* 75:515-520, 1988.
95. Sowers JR, Mohanty PK, Thames MD, Goldstein DS, Atlas S. Effects of atrial natriuretic factor on urinary concentration of catecholamines and renin secretion in dogs. *Biochem Biophys Res Comm* 156:1070-1076, 1988.
96. Eisenhofer G, Goldstein DS, Ropchak TG, Nguyen HQ, Keiser HR, Kopin IJ. Source and physiological significance of plasma 3,4-dihydroxyphenylglycol and 3-methoxy-4-hydroxyphenylglycol. *J Auton Nerv Sys* 24:1-14, 1988.

1989

97. Eisenhofer G, Hovevey-Sion D, Kopin IJ, Miletich R, Kirk KL, Finn R, Goldstein DS. Neuronal uptake and metabolism of 2- and 6-Fluorodopamine: False neurotransmitters for positron emission tomographic imaging of sympathetically innervated tissues. *J Pharmacol Exp Therap* 248:419-427, 1989.
98. Lesem MD, George DT, Kaye WH, Goldstein DS, Jimerson DC. State-related changes in norepinephrine regulation in anorexia nervosa. *Biological Psychiatry* 25:509-512, 1989.
99. Eisenhofer G, Goldstein DS, Kopin IJ. Plasma dihydroxyphenylglycol for estimation of noradrenaline neuronal reuptake in the sympathetic nervous system in vivo. *Clin Sci* 76:171-182, 1989.
100. Eisenhofer G, Brush JE, Cannon RO III, Stull R, Kopin IJ, Goldstein DS. Plasma dihydroxyphenylalanine and total body and regional noradrenergic activity in humans. *J Clin Endocrinol Metab* 68:247-255, 1989.
101. Brush JE Jr, Eisenhofer G, Stull R, Garty M, Maron BJ, Cannon RO III, Panza J, Epstein SE, Goldstein DS. Cardiac norepinephrine kinetics in hypertrophic cardiomyopathy. *Circulation* 79:836-844, 1989.
102. Garty M, Deka-Starosta A, Chang PC, Eisenhofer G, Zukowska-Grojec Z, Stull R, Kopin IJ, Goldstein DS. Plasma levels of catechols during reflexive changes in sympathetic nerve activity. *Neurochem Res* 1989;14:523-531.
103. Goldstein DS, Eisenhofer G, Garty M, Sax FL, Keiser HR, Kopin IJ. Pharmacologic and tracer methods to study sympathetic function in primary hypertension. *Clin Exp Hyper* 1989; A11 (Suppl. 1):173-189.
104. Garty M, Deka-Starosta A, Stull R, Kopin IJ, Goldstein DS. Plasma levels of catechols after fasting in intact or adrenal-demedullated rats. *J Auton Nerv Sys* 1989;26:181-184.
105. Goldstein DS, Eisenhofer G, Stull R, Garty M, Keiser HR, Kopin IJ. Implications of measurements of plasma levels of catechols in hypertension. *Am J Hyper* 1989;2:133S-139S.
106. Goldstein DS, Stull R, Eisenhofer G, Gill JR Jr. Urinary excretion of DOPA and dopamine during alterations in dietary salt intake in humans. *Clin Sci* 1989;76:517-522.
107. Feuerstein G, Siren A-L, Goldstein DS, Johnson AK, Zerbe RL. Effect of morphine on the hemodynamic and neuroendocrine responses to hemorrhage in conscious rats. *Circulatory Shock* 1989;27:219-235.
108. Garty M, Stull R, Kopin IJ, Goldstein DS. Skin color, aging, and plasma dopa levels. *J Auton Nerv Sys* 1989;26:261-263.
109. Goldstein DS, Polinsky RJ, Garty M, Robertson D, Biaggioni I, Brown RT, Stull R, Kopin IJ. Patterns of plasma levels of catechols in neurogenic orthostatic hypotension. *Ann Neurol* 1989;26:558-563.

110. Deka-Starosta A, Garty M, Zukowska-Grojec Z, Keiser HR, Kopin IJ, Goldstein DS. Renal sympathetic nerve activity and norepinephrine release in rats. *Am J Physiol* 1989;257:R229-R236.
111. Hovevey-Sion D, Kopin IJ, Stull RW, Goldstein DS. Effects of monoamine oxidase inhibitors on levels of catechols and homovanillic acid in striatum and plasma. *Neuropharmacology* 1989;28:791-797.
112. Troullos ES, Hargreaves KM, Goldstein DS, Stull R, Dionne RA. Epinephrine suppresses stress-induced increases in plasma immunoreactive β -endorphin in humans. *J Clin Endocrinol Metab* 1989;69:546-551.
113. Szemerédi K, Stull R, Kopin IJ, Goldstein DS. Effects of a peripherally acting α -2 adrenoceptor antagonist (L-659,066) on hemodynamics and plasma levels of catechols in conscious rats. *Eur J Pharmacol* 1989;170:53-59.
114. Hoffman A, Keiser HR, Grossman E, Goldstein DS, Gold PW, Kling M. Endothelin in human cerebrospinal fluid: Low levels in depressive patients. *Lancet* 1989;II:1519.
115. Darling G, Goldstein DS, Stull R, Gorschboth CM, Norton JA. Tumor necrosis factor: Immune endocrine interaction. *Surgery* 1989;106:1155-1160.
116. Siren A-L, Paakkari P, Goldstein DS, Feuerstein G. Mechanisms of central hemodynamic and sympathetic regulation by mu opioid receptors: effects of dermorphin in the conscious rat. *J Pharmacol Exp Ther* 1989;248:596-604.
117. Szemerédi K, Bagdy G, Kopin IJ, Goldstein DS. Neurocirculatory regulation in cortisol-induced hypertension. *Clin Exp Hyper* 1989;A11:1425-1439.

1990

118. Biaggioni I, Goldstein DS, Atkinson T, Robertson D. Dopamine- β -hydroxylase deficiency in humans. *Neurology* 1990;40:370-373.
119. Grossman E, Hoffman A, Chang PC, Keiser HR, Goldstein DS. Increased spillover of dopa into arterial blood during dietary salt loading. *Clin Sci* 1990;78:423-429.
120. Rea RF, Eckberg DL, Fritsch JM, Goldstein DS. Relation of norepinephrine and sympathetic traffic during during hypotension in humans. *Am J Physiol* 1990;258:R982-R986.
121. Goldstein DS, Chang PC, Eisenhofer G, Miletich R, Finn R, Bacher J, Kirk KL, Bacharach S, Kopin IJ. Positron emission tomographic imaging of cardiac sympathetic innervation and function. *Circulation* 1990;81:1606-1621.
122. Eisenhofer G, Esler MD, Cox H, Meredith I, Jennings G, Angus JA, Brush JE Jr, Goldstein DS. Differences in the neuronal removal of circulating epinephrine and norepinephrine. *J Clin Endocrinol Metab* 1990;70:1710-1720.
123. Goldstein DS. Neurotransmitters and stress. *Biofeedback Self-Regul* 1990;15:243-271.
124. George DT, Kaye WH, Goldstein DS, Brewerton TD, Jimerson DC. Altered norepinephrine regulation in bulimia: Effects of pharmacological challenge with isoproterenol. *Psychiatry Res* 1990;33:1-10.

125. Garty M, Deka-Starosta A, Chang P, Kopin IJ, Goldstein DS. Effects of clonidine on renal sympathetic nerve activity and norepinephrine spillover. *J Pharmacol Exp Ther* 1990;254:1068-1074.
126. Szemerédi K, Bagdy G, Stull R, Kopin IJ, Goldstein DS. Cortisol and alpha-2 adrenergic regulation of sympathoneural activity. *Biogenic Amines* 1990;7:445-454.
127. Garty M, Deka-Starosta A, Stull R, Kopin IJ, Goldstein DS. Effects of general anesthetics on plasma levels of catechols in intact and in adrenal-demedullated rats. *Biogenic Amines* 1990;7:435-443.
128. Hovevey-Sion D, Eisenhofer G, Kopin IJ, Kirk KL, Chang PC, Szemerédi K, Goldstein DS. Metabolic fate of injected [³H]-dopamine and [³H]-2-fluorodopamine in rats. *Neuropharmacology* 1990;29:881-887.
129. Chang PC, Szemerédi K, Grossman E, Kopin IJ, Goldstein DS. The fate of tritiated 6-fluorodopamine in rats: A false neurotransmitter for positron emission tomographic imaging of sympathetic innervation and function. *J Pharmacol Exp Ther* 1990;255:809-817.
130. Johannessen JN, Goldstein DS, Oliver J, Markey SP. Prolonged changes in plasma catecholamine metabolites following a single infusion of an MPTP analog. *Life Sci* 1990;47:1895-1901.
131. Kaye WH, George DT, Gwirtsman HE, Jimerson DC, Goldstein DS, Ebert MH, Lake CR. Isoproterenol infusion test in anorexia nervosa: Assessment of pre- and post-beta-noradrenergic receptor activity. *Psychopharmacol Bull* 1990;26:355-359.

1991

132. Goldstein DS, Chang PC, Smith CB, Herscovitch P, Austin SM, Eisenhofer G, Kopin IJ. Dosimetric estimates for clinical positron emission tomographic scanning after injection of [¹⁸F]-6-fluorodopamine. *J Nuc Med* 1991;32:102-110.
133. Grossman E, Rea RF, Hoffman A, Goldstein DS. Yohimbine increases sympathetic nerve activity and norepinephrine spillover in normal volunteers. *Am J Physiol* 1991;260:R142-R147.
134. Dunn BB, Channing MA, Adams HR, Goldstein DS, Kirk KL, Kiesewetter DO. A single column, rapid quality control procedure for 6-[¹⁸F]Fluoro-L-dopa and 6-[¹⁸F]Fluorodopamine PET imaging agents. *Nuc Med Biol* 1991;18:209-213.
135. Szemerédi K, Komoly S, Kopin IJ, Bagdy G, Keiser HR, Goldstein DS. Simultaneous measurement of plasma and brain extracellular fluid concentrations of catechols after yohimbine administration in rats. *Brain Res* 1991;542:8-14.
136. Grossman E, Hoffman A, Tamrat M, Armando I, Keiser HR, Goldstein DS. Endogenous dopa and dopamine responses to dietary salt loading in salt-sensitive rats. *J. Hypertension* 1991;9:259-263.
137. Obarzanek E, Lesem MD, Goldstein DS, Jimerson DC. Reduced resting metabolic rate in patients with bulimia nervosa. *Arch Gen Psychiatry* 1991;48:456-462.

138. Goldstein DS, Grossman E, Tamrat M, Chang PC, Eisenhofer G, Bacher J, Kirk KL, Bacharach S, Kopin IJ. Positron emission imaging of cardiac sympathetic innervation and function using [^{18}F]-Fluorodopamine: Effects of chemical sympathectomy by 6-hydroxydopamine. *J Hypertension* 1991;9:417-423.
139. Grossman E, Chang PC, Hoffman A, Tamrat M, Kopin IJ, Goldstein DS. Forearm kinetics of plasma norepinephrine: Dependence on regional blood flow and the site of infusion of the tracer. *Am J Physiol* 1991;260:R946-R952.
140. Chai CY, Lin AMY, Hu SR, Wang JR, Kao LS, Kuo JS, Goldstein DS. Sympathoadrenal excitation and inhibition by lower brainstem stimulation in cats. *J Auton Nerv Sys* 1991;33:35-46.
141. Armando I, Grossman E, Hoffman A, Goldstein DS. A method for measuring concentrations of O-methyldopa (methoxytyrosine) in urine and plasma. *J Chromatog, Biomed Applic* 1991;568:45-54.
142. Grossman E, Keiser HR, Goldstein DS. Glucagon stimulation and clonidine suppression testing in the diagnosis of pheochromocytoma. *Hypertension* 1991;17:733-741.
143. Goldstein DS, Cannon RO III, Quyyumi A, Chang P, Duncan M, Brush JE Jr, Eisenhofer G. Regional extraction of circulating norepinephrine, dopa, and dihydroxyphenylglycol in humans. *J Auton Nerv Sys.* 1991;34:17-36.
144. Goldstein DS, Grossman E, Listwak S, Folio CJ. Sympathetic reactivity during a yohimbine challenge test in essential hypertension. *Hypertension* 1991;18 (Suppl. III):III-40--III-48.
145. Szemerédi K, Pacak K, Kopin IJ, Goldstein DS. Sympathoneural and skeletal muscle contributions to plasma dopa responses in pithed rats. *J Auton Nerv Sys* 1991;35:169-174.
146. Turkkan JS, Goldstein, DS. Stress and sodium hypertension in baboons: neuroendocrine and pharmacotherapeutic assessments. *J Hypertension* 1991;9:969-975.
147. Grossman E, Chang PC, Hoffman A, Tamrat M, Goldstein DS. Evidence for functional α_2 -adrenoceptors on vascular sympathetic nerve endings in the human forearm. *Circ Res* 1991;69:887-897.
148. Eisenhofer G, Esler MD, Goldstein DS, Kopin IJ. Neuronal uptake, metabolism, and release of tritium-labeled norepinephrine during assessment of its plasma kinetics. *Am J Physiol* 1991;261:E505-E515.
149. Gill JR Jr, Grossman E, Goldstein DS. High urinary dopa excretion and low urinary dopamine:dopa ratio in salt-sensitive hypertension. *Hypertension* 1991;18:614-621.
150. Turkkan JS, Goldstein DS. Chronic effects of high salt intake and conflict stress on blood pressure in primates. *Integrative Physiol Behav Sci.* 1991;26:269-281.

1992

151. Devinsky O, Emoto S, Goldstein DS, Stull R, Porter RJ, Theodore WH, Nadi NS. Cerebrospinal fluid levels of dopa, catechols, and monoamine metabolites in patients with epilepsy. *Epilepsia* 1992;33:263-270.

152. Eisenhofer G, Esler MD, Meredith IT, Dart A, Cannon RO III, Quyyumi AA, Lambert G, Chin J, Jennings GL, Goldstein DS. Sympathetic nervous function in the human heart as assessed by cardiac spillovers of dihydroxyphenylglycol and norepinephrine. *Circulation* 1992;85:1775-1785.
153. Kvetnansky R, Goldstein DS, Weise VK, Holmes C, Szemeredi K, Bagdy G, Kopin IJ. Effects of handling or immobilization on plasma levels of dopa, catecholamines, and metabolites in rats. *J Neurochem* 1992;58:2296-2302.
154. Kvetnansky R, Armando I, Weise VK, Holmes C, Fukuhara K, Deka-Starosta A, Kopin IJ, Goldstein DS. Plasma DOPA responses during stress: Dependence on sympathoadrenal activity and tyrosine hydroxylation. *J Pharmacol Exp Ther* 1992;261:899-909.
155. Kohn WG, Grossman E, Fox PC, Armando I, Goldstein DS, Baum BJ. Effect of ionizing radiation on sympathetic nerve function in rat salivary glands. *J Oral Pathol Med* 1992;21:134-137.
156. Grossman E, Goldstein DS, Hoffman A, Wacks IR, Epstein M. Neurohormonal effects of water immersion in humans. *Am J Physiol* 1992;262:R993-R999.
157. Grossman E, Hoffman A, Armando I, Kopin IJ, Goldstein DS. Sympathoadrenal contribution to plasma dopa. *Clin Sci* 1992;83:65-74.
158. Pacak K, Armando I, Fukuhara K, Kvetnansky R, Palkovits M, Kopin IJ, Goldstein DS. Noradrenergic activation in the paraventricular nucleus during acute and chronic immobilization stress in rats: An *in vivo* microdialysis study. *Brain Res* 1992;589:91-96.
159. Breier A, Davis O, Buchanan R, Listwak SJ, Holmes C, Pickard D, Goldstein DS. Effects of alprazolam on pituitary-adrenal and catecholaminergic responses to metabolic stress in humans. *Biol Psychiatry* 1992;32:880-890.
160. Pacak K, Armando I, Komoly S, Fukuhara K, Weise VK, Holmes C, Kopin IJ, Goldstein DS. Hypercortisolemia inhibits yohimbine-induced release of norepinephrine in the posterolateral hypothalamus of conscious rats. *Endocrinology* 1992;131:1369-1376.
161. Goldstein DS, Breier A, Wolkowitz OM, Pickar D, Lenders JWM. Plasma levels of catechols and ACTH during acute glucopenia in humans. *Clin Auton Res* 1992;2:359-366.

1993

162. Kaler SG, Goldstein DS, Holmes C, Salerno JA, Gahl WA. Plasma and cerebrospinal fluid neurochemical pattern in Menkes' disease. *Ann Neurol* 1993;33:171-175.
163. Lenders JWM, Eisenhofer G, Armando I, Keiser HR, Goldstein DS, Kopin IJ. Determination of metanephrines in plasma by liquid chromatography with electrochemical detection. *Clin Chem* 1993;39:97-103.
164. Wolfowitz E, Grossman E, Folio CJ, Keiser HR, Kopin IJ, Goldstein DS. Derivation of urinary dopamine from plasma dihydroxyphenylalanine (DOPA) in humans. *Clin Sci* 1993;84:549-557.
165. Pacak K, Palkovits M, Kvetnansky R, Fukuhara K, Armando I, Kopin IJ, Goldstein DS. Effects of single or repeated immobilization on release of norepinephrine and its

- metabolites in the central nucleus of the amygdala in conscious rats. *Neuroendocrinology* 1993;57:626-633.
166. Finberg JPM, Pacak K, Kopin IJ, Goldstein DS. Chronic inhibition of monoamine oxidase type A increases noradrenaline release in rat frontal cortex. *Naunyn-Schmiedeberg's Arch Pharmacol* 1993;347:500-505.
 167. Grossman E, Rosenthal T, Peleg E, Holmes C, Goldstein DS. Oral yohimbine increases blood pressure and sympathetic outflow in hypertensives. *J Cardiovasc Pharmacol* 1993;22:22-26.
 168. Yadid G, Pacak K, Golomb E, Harvey-White JD, Lieberman DM, Kopin IJ, Goldstein DS. Glycine stimulates striatal dopamine release in conscious rats. *Br J Pharmacol* 1993;110:50-53.
 169. Niedermaier ON, Smith ML, Beightol LA, Zukowska-Grojec Z, Goldstein DS, Eckberg DL. Influence of cigarette smoking on human autonomic function. *Circulation* 1993;88:562-571.
 170. Goldstein DS. Chemical mediators of ANS activity. *Curr Opin Neurol Neurosurg* 1993;6:524-526.
 171. Goldstein DS. New clinical techniques to assess regional sympathoneural activity. *Clin Auton Res* 1993;3:209.
 172. Lenders JWM, Kvetnansky R, Pacak K, Goldstein DS, Kopin IJ, Eisenhofer G. Extraneuronal metabolism of endogenous and exogenous norepinephrine and epinephrine in rats. *J Pharmacol Exp Ther* 1993;266:288-293.
 173. Kvetnansky R, Fukuhara K, Pacak K, Cizza G, Goldstein DS, Kopin IJ. Endogenous glucocorticoids restrain catecholamine synthesis and release at rest and during immobilization stress in rats. *Endocrinology* 1993;133:1411-1419.
 174. Pacak K, Kvetnansky R, Palkovits M, Fukuhara K, Yadid G, Kopin IJ, Goldstein DS. Adrenalectomy augments *in vivo* release of norepinephrine in the paraventricular nucleus during immobilization stress. *Endocrinology* 1993;133:1404-1410.
 175. Pacak K, Yadid G, Jakab J, Lenders JWM, Kopin IJ, Goldstein DS. *In vivo* hypothalamic release and synthesis of catecholamines in spontaneously hypertensive rats. *Hypertension* 1993;22:467-478.
 176. Bagdy G, Szemerédi S, Listwak SJ, Keiser HR, Goldstein DS. Plasma catecholamine, renin activity, and ACTH responses to the serotonin receptor agonist DOI in juvenile spontaneously hypertensive rats. *Life Sci* 1993;53:1573-1582.
 177. Kaler SG, Gahl WA, Berry SA, Holmes CS, Goldstein DS. Predictive value of plasma catecholamine levels in neonatal detection of Menkes disease. *J Inher Metab Dis* 1993;16:907-908.
 178. Goldstein DS, Eisenhofer G, Dunn BB, Armando I, Lenders J, Grossman E, Holmes C, Kirk KL, Bacharach S, Adams R, Herscovitch P, Kopin IJ. Positron emission tomographic imaging of cardiac sympathetic innervation using 6-[¹⁸F]fluorodopamine: Initial findings in humans. *J Am Coll Cardiol* 1993;22:1961-1971.

179. Pacak K, Palkovits M, Kvetnansky R, Kopin IJ, Goldstein DS. Effects of brainstem hemisections on *in vivo* synthesis and release of catecholamines in the paraventricular nucleus of the hypothalamus. *Neuroendocrinology* 1993;58:196-201.
180. Goldstein DS, Garty M, Bagdy G, Szemeredi K, Sternberg EM, Listwak S, Deka-Starosta A, Hoffman A, Chang PC, Stull R, Gold PW, Kopin IJ. Role of CRH in glucopenia-induced adrenomedullary activation in rats. *J Neuroendocrinology* 1993;5:475-486.
181. Yadid G, Pacak K, Kopin IJ, Goldstein DS. Modified microdialysis probe for sampling extracellular fluid and administering drugs *in vivo*. *Am J Physiol* 1993;265:R1205-1211.
182. Goldstein DS, Grossman E, Armando I, Wolfvitz E, Folio CJ, Holmes C, Keiser HR. Correlates of urinary excretion of catechols in humans. *Biogenic Amines* 1993;10:3-17.
183. Watkins L, Sherwood A, Goldstein DS, Maixner W. Mechanisms underlying cardiovascular defense reaction evoked by dorsal periaqueductal grey stimulation. *Am J Physiol* 1993;265;R1155-R1161.
184. Malozowski S, Mamalaki E, Pleti M, Armando I, Goldstein DS, Merriam GR. Induction of reversible growth hormone deficiency and growth retardation by blockade of norepinephrine synthesis in the rat. *Acta Endocrinol* 1993;129:554-558.

1994

185. Breier A, Buchanan RW, Waltrip RW II, Listwak S, Holmes C, Goldstein DS. The effect of clozapine on plasma norepinephrine: Relationship to clinical efficacy. *Neuropsychopharmacology* 1994;10:1-7.
186. Holmes C, Eisenhofer G, Goldstein DS. Improved HPLC method for plasma dihydroxyphenylacetic acid and other catechols. *J Chromatog Biomed Applic* 1994;653:131-138.
187. Goldstein DS, Coronado L, Kopin IJ. 6-^[18F]Fluorodopamine pharmacokinetics and dosimetry in humans. *J Nucl Med* 1994;35:964-973.
188. Hoffman A, Grossman E, Goldstein DS, Gill JR Jr, Keiser HR. Urinary excretion rate of endothelin-1 in patients with essential hypertension and salt sensitivity. *Kidney Internat* 1994;45:556-560.
189. Chang PC, Grossman E, Kopin IJ, Goldstein DS. On the existence of functional β -adrenoceptors on vascular sympathetic nerve endings in the human forearm. *J Hypertension* 1994;12:681-690.
190. Kaler SG, Gallo LK, Proud VK, Percy AK, Mark Y, Segal NA, Goldstein DS, Holmes CS, Gahl WA. Occipital horn syndrome and a mild Menkes phenotype associated with splice site mutations at the MNK locus. *Nature (Genetics)* 1994;8:195-202.
191. Yadid, Kopin IJ, Goldstein DS. Endogenous serotonin stimulates striatal dopamine release conscious rats. *J Pharmacol Exp Ther* 1994;270:1158-1165.
192. Finberg JPM, Pacak K, Goldstein DS, Kopin IJ. Modification of cerebral cortical noradrenaline release by chronic inhibition of MAO-A. *J Neural Transm (Suppl)*; 1994;41:123-125.

193. Eisenhofer G, Pecorella W, Pacak K, Hooper D, Kopin IJ, Goldstein DS. The neuronal and extraneuronal origins of plasma 3-methoxy-4-hydroxyphenylglycol in rats. *J Auton Nerv Sys* 1994;50:93-107.
194. Yadid G, Golomb E, Goldstein DS. Functional α_2 -glycine receptors in rat adrenal. *Eur J Pharmacol.* 1994;288, 399-401.

1995

195. Cizza G, Pacak K, Kvetnansky R, Palkovits M, Goldstein DS, Brady LS, Fukuhara K, Bergamini E, Kopin IJ, Blackman MR, Chrousos GR, Gold PW. Decreased stress responsivity of central and peripheral catecholaminergic systems in aged male 344/N Fischer rats. *J Clin Invest* 1995;95:1217-1224.
196. Goldstein DS, Holmes C, Vernikos J, Convertino V. Catecholaminergic effects of prolonged head-down bed rest. *J Appl Physiol* 1995;78:1023-1029.
197. Eisenhofer G, Friberg P, Pacak K, Goldstein DS, Murphy DL, Tsigos C, Quyyumi AA, Lenders JWM. Plasma metanephrines: do they provide useful information about sympatho-adrenal function and catecholamine metabolism? *Clin Sci* 1995;88:533-542.
198. Pacak K, Palkovits M, Goldstein DS. Relationships between norepinephrine release in the hypothalamic paraventricular nucleus and pituitary-adrenocortical and sympathoneural outflows. *Frontiers in Neuroendocrinol* 1995;16:89-150.
199. Eisenhofer G, Aneman A, Hooper D, Holmes C, Goldstein DS, Friberg P. Production and metabolism of dopamine and norepinephrine in mesenteric organs and liver of swine. *Am J Physiol* 1995;268:G641-G649.
200. Goldstein DS, Hahn S-H, Holmes C, Tifft C, Harvey-White J, Milstien S, Kaufman S. Monoaminergic effects of folinic acid, L-DOPA, and 5-hydroxytryptophan in dihydropteridine reductase deficiency. *J Neurochem* 1995;64:2810-2813.
201. Lenders JWM, Golczynska A, Goldstein DS. Glucocorticoids, sympathetic activity, and presynaptic α_2 -adrenoceptor function in humans. *J Clin Endocrinol Metab* 1995;80:1804-1808.
202. Lenders JWM, Keiser HR, Goldstein DS, Willemsen J, Friberg P, Jacobs M-C, Kloppenborg PWC, Kopin IJ, Thien T, Eisenhofer G. Plasma levels of metanephrines in the diagnosis of pheochromocytoma. *Ann Int Med* 1995;123:101-109.
203. Dakak N, Quyyumi AA, Eisenhofer G, Goldstein DS, Cannon RO III. Sympathetically-mediated effects of mental stress on the cardiac microcirculation of patients with coronary artery disease. *Am J Cardiol* 1995;76:125-130.
204. Goldstein DS, Mezey E, Yamamoto T, Aneman A, Friberg P, Eisenhofer G. Is there a third peripheral catecholaminergic system? Endogenous dopamine as an autocrine/paracrine substance derived from plasma DOPA and inactivated by conjugation. *Hypertens Res* 1995;18 (Suppl. I):S93-S99.
205. Golczynska A, Lenders JWM, Goldstein DS. Glucocorticoid-induced sympathoinhibition in humans. *Clin Pharmacol Ther* 1995;58:90-98.

206. Wolfovitz E, Pacak K, Abassi A, Kopin IJ, Goldstein DS. Effects of hyperinsulinemia or hypercortisolemia on neurochemical indices of catecholamine release and synthesis in conscious rats. *J Auton Nerv Sys* 1995;54:104-112.
207. Eisenhofer G, Friberg P, Goldstein DS, Esler M. Differential actions of desipramine on sympathoadrenal release of noradrenaline and adrenaline. *Br J Clin Pharmacol* 1995;40:263-265.
208. Pacak K, McCarty R, Palkovits M, Cizza G, Kopin IJ, Goldstein DS, Chrousos GP. Decreased central and peripheral catecholaminergic activation in obese Zucker rats. *Endocrinology* 1995;136:4360-4367.
209. Finberg JPM, Wang J, Goldstein DS, Kopin IJ, Bankiewicz KS. Influence of selective inhibition of monoamine oxidase A or B on striatal metabolism of L-DOPA in hemiparkinsonian rats. *J Neurochem* 1995;65:1213-1220.
210. Goldstein DS, Stuhlmuller J, Holmes C, Kopin IJ. Positron emission tomographic (PET) and neurochemical findings in patients with dysautonomia. *Clin Auton Res* 1995;5:319.
211. Jacobs M-C, Goldstein DS, Willemsen JJ, Smits P, Thien T, Dionne RA, Lenders JWM. Neurohumoral antecedents of vasodepressor reactions. *Eur J Clin Invest* 1995;25:754-761.
212. Pacak K, McCarty R, Palkovits M, Kvetnansky R, Matern P, Hart C, Kopin IJ, Goldstein DS. Catecholaminergic inhibition by hypercortisolemia in the paraventricular nucleus of conscious rats. *Endocrinology* 1995;136:4814-4819.
213. Peles E, Akselrod S, Goldstein DS, Nitzan H, Azaria M, Almog S, Dolphin D, Halkin H, Modan M. Insulin resistance and autonomic function in traumatic lower limb amputees. *Clin Auton Res* 1995;5:279-288.
214. Peles E, Akselrod S, Goldstein DS, Nitzan H, Azaria M, Almog S, Dolphin D, Halkin H, Modan M. Interrelationships among measures of autonomic activity and cardiovascular risk factors during orthostasis and oral glucose tolerance test. *Clin Auton Res* 1995;5:271-278.
215. Goldstein DS. Stress as a scientific idea: A homeostatic theory of stress and distress. *Homeostasis* 1995;4:177-215.
216. Kaler SG, Buist NRM, Holmes CS, Goldstein DS, Miller RC, Gahl WA. Early copper therapy in classic Menkes disease patients with a novel splicing mutation. *Ann Neurol* 1995;38:921-928.
217. Raja SN, Choi Y, Asano Y, Holmes C, Goldstein DS. Arteriovenous differences in plasma concentrations of catechols in rats with neuropathic pain. *Anesthesiology* 1995;83:1000-1008.
218. Kvetnansky R, Pacak K, Fukuhara K, Viskupic E, Hiremagalur B, Nankova B, Goldstein DS, Sabban EL, Kopin IJ. Sympathoadrenal system in stress. Interaction with the hypothalamic-pituitary-adrenocortical system. *Ann NY Acad Sci* 1995;771:131-158.
219. Pacak K, Palkovits M, Kvetnansky R, Yadid G, Kopin IJ, Goldstein DS. Effects of various stressors on *in vivo* norepinephrine release in the hypothalamic paraventricular nucleus and pituitary-adrenocortical axis. *Ann NY Acad Sci* 1995;771:115-130.

220. Goldstein DS. Clinical assessment of sympathetic responses to stress. *Ann NY Acad Sci* 1995;771:570-593.
221. Chang PC, Grossman E, Kopin IJ, Goldstein DS, Folio CJ, Holmes C. On the existence of functional angiotensin II receptors on vascular sympathetic nerve terminals in the human forearm. *J Hypertension* 1995;13:1275-1284.
222. Pacak K, McCarty R, Palkovits M, Kopin IJ, Goldstein DS. Effects of immobilization on *in vivo* release of norepinephrine in the bed nucleus of the stria terminalis in conscious rats. *Brain Res* 1995;688:242-246.
223. Patterson SM, Krantz DS, Gottdiener JS, Hecht G, Vargot S, Goldstein DS. Prothrombotic effects of environmental stress: Changes in platelet function, hematocrit, and total plasma protein. *Psychosom Med* 1995;57:592-599.

1996

224. Goldstein DS, McRae A, Holmes C, Dalakas MC. Autoimmune autonomic failure in a patient with myeloma-associated Shy-Drager syndrome. *Clin Auton Res* 1996;6:17-22.
225. Fukuhara K, Kvetnansky R, Weise VK, Ohara H, Yoneda R, Goldstein DS, Kopin IJ. Effects of continuous cold and intermittent cold (SART) stress on sympathoadrenal system activity in rats. *J Neuroendocrinol* 1996;8:65-72.
226. Kaler SG, Das S, Levinson B, Goldstein DS, Holmes CS, Patronas NJ, Packman S, Gahl, WA. Successful early copper therapy in Menkes disease associated with a mutant transcript containing a small in-frame deletion. *Biochem Molec Med* 1996;57:37-46.
227. Eisenhofer G, Friberg P, Rundqvist B, Quyyumi AA, Lambert G, Kaye DM, Kopin IJ, Goldstein DS, Esler MD. Cardiac sympathetic nerve function in congestive heart failure. *Circulation* 1996;93:1667-1676.
228. Nedvidkova J, Pacak K, Nedvidek J, Goldstein DS, Schreiber V. Triiodothyronine attenuates estradiol-induced increases in dopamine D-2 receptor number in rat anterior pituitary. *Brain Res* 1996;712:148-152.
229. Goldstein DS. The sympathetic nervous system and the "fight-or-flight" response: Outmoded ideas? *Molec Psychiatry* 1996;1:95-97.
230. Pacak K, Palkovits M, Makino S, Kopin IJ, Goldstein DS. Brainstem hemisection decreases corticotropin-releasing hormone mRNA in the paraventricular nucleus but not in the central amygdaloid nucleus. *J Neuroendocrinol* 1996;8:543-551.
231. Jacobs M-C, Goldstein DS, Willemsen JJ, Smits P, Thien T, Lenders JWM. Differential effects of low- and high-intensity lower body negative pressure on noradrenaline and adrenaline kinetics in humans. *Clin Sci* 1996;90:337-343.
232. Nedvidkova J, Pacak K, Nedvidek J, Goldstein DS. Triiodothyronine prevents estradiol-induced increases in dopamine D-2 receptor number in rat anterior pituitary. *Brain Res* 1996;712:148-152.
233. Goldstein DS, Lenders JWM, Kaler SG, Eisenhofer G. Catecholamine phenotyping: Clues to the diagnosis, treatment, and pathophysiology of neurogenetic disorders. *J Neurochem* 1996;67:1781-1790.

234. Axelrod F, Goldstein DS, Holmes C, Berlin D, Kopin IJ. Pattern of plasma levels of catechols in familial dysautonomia. *Clin Auton Res* 1996;6:205-210.
235. Fukuhara K, Kvetnansky R, Cizza G, Pacak K, Ohara H, Goldstein DS, Kopin IJ. Interrelations between sympathoadrenal system and hypothalamo-pituitary-adrenocortical/thyroid systems in rats exposed to cold stress. *J Neuroendocrinol* 1996;8:533-541.
236. Yamamoto T, Polinsky RJ, Goldstein DS, Baucom CE, Kopin IJ. Plasma sulfoconjugated dopamine levels are normal in patients with autonomic failure. *J Lab Clin Med* 1996;128:488-491.

1997

237. Goldstein DS, Holmes C. Metabolic fate of the sympathoneural imaging agent 6-[¹⁸F]fluorodopamine in humans. *Clin Exp Hyper* 1997;19:155-161.
238. Goldstein DS, Holmes C, Cannon RO III, Eisenhofer G, Kopin IJ. Sympathetic cardioneuropathy in dysautonomias. *N Engl J Med* 1997;336:696-702.
239. Goldstein DS, Holmes C, Stuhlmuller JE, Lenders JWM, Kopin IJ. 6-[¹⁸F]Fluorodopamine PET scanning in the assessment of cardiac sympathoneural function. *Clin Auton Res* 1997;7:17-29.
240. Horinaka N, Artz N, Cook M, Holmes C, Goldstein DS, Kennedy C, Sokoloff L. Effects of elevated plasma levels of epinephrine on local glucose utilization and blood flow in the conscious rat brain. *Am J Physiol* 1997;272:H1666-H1671.
241. Schmidt ME, Matochik JA, Goldstein DS, Schouten JL, Zametkin AJ, Potter WZ. Gender differences in brain metabolic and plasma catecholamine responses to alpha 2-adrenoceptor blockade. *Neuropsychopharmacology* 1997;16:298-310.
242. Goldstein DS, Eisenhofer G, Kopin IJ. Disorders of the autonomic nervous system. *N Engl J Med* 1997;337:278-280 (letter).
243. Schmidt ME, Goldstein DS, Schouten JL, Matochik JA, Kim H-G, Potter WZ. Acute alpha-2 blockade by idazoxan increases insulin and lowers plasma glucose during positron emission tomography. *Psychopharmacol Bull* 1997;33:253-259.
244. Goldstein DS. On the dialectic between molecular genetics and integrative physiology: Toward a new medical science. *Perspectives Biol Med* 1997;40:505-515.
245. McCarty R, Pacak K, Goldstein DS, Eisenhofer G. Regulation of peripheral catecholamine responses to acute stress in young adult and aged F-344 rats. *Stress* 1997;2:113-122.
246. Tack CJJ, Lenders JWM, Goldstein DS, Lutterman JA, Smits P, Thien T. Haemodynamic actions of insulin. *Curr Opin Nephrol Hypertens* 1998;7:99-106.

In press

247. Pranzatelli MR, Huang Y, Tate E, Goldstein DS, Holmes C, Davies H, Kinast M, Lange BM, Schub HS, Shevell MD, Stanford RE. Monoaminergic effects of high dose

corticotropin in corticotropin-responsive pediatric opsoclonus-myoclonus. *Movement Disorders*.

248. Goldstein DS. The sympathetic nervous and the adrenomedullary hormonal systems: Differential responses to stressors. *J Musculoskel Pain*.
249. Castillo SO, Baffi J, Palkovits M, Goldstein DS, Kopin IJ, Magnuson M, Nikodem VM. Nurr1 is necessary for cell type-specific catecholamine synthesis in brain.
250. Goldstein DS, Katzper M, Kopin IJ. Kinetic model for the fate of the sympathoneural imaging agent 6-[¹⁸F]fluorodopamine in the human heart. *Am J Physiol*.
251. Kopin IJ, Rundqvist B, Friberg P, Lenders J, Goldstein DS, Eisenhofer G. Different relationships among norepinephrine release, uptake and spillover in human heart, kidneys, and forearm.
252. Elman I, Goldstein DS, Eisenhofer G, Folio J, Malhotra AK, Adler CM, Pickar D, Breier A. Mechanism of peripheral noradrenergic stimulation by clozapine. *Am J Psychiatry*.

Book Chapters

Before 1984

1. Harris AH, Goldstein DS, Brady JV. Visceral learning: Cardiovascular conditioning in primates. In Beatty J, Legewie H (Eds), *Biofeedback and Behavior*. New York: Plenum, 1977.
2. Kopin IJ, Goldstein DS, Feuerstein GZ. The sympathetic nervous system and hypertension. In Laragh JJ, Buhler FR, Seldin DW (Eds), *Frontiers in Hypertension Research*. New York: Springer-Verlag, 1981, pp. 283-289.

1984

3. Shoup RE, Kissinger PT, Goldstein DS. Rapid liquid chromatographic methods for assay of norepinephrine, epinephrine, and dopamine in biological fluids and tissues. In Ziegler MG, Lake CR (Eds), *Norepinephrine*. Baltimore: Williams & Wilkins, 1984, pp. 38-46.
4. Goldstein DS, Ziegler MG, Lake CR. Plasma norepinephrine in essential hypertension. In Ziegler MG, Lake CR (Eds), *Norepinephrine*. Baltimore: Williams & Wilkins, 1984, pp. 389-400.
5. Lake CR, Chernow B, Feuerstein GZ, Goldstein DS, Ziegler MG. The sympathetic nervous system in man: Its evaluation and the measurement of plasma norepinephrine. In Ziegler MG, Lake CR (Eds.), *Norepinephrine*. Baltimore: Williams & Wilkins, 1984, pp. 1-26.

1986

6. Goldstein DS, McDonald RH. Biochemical indices of cardiovascular reactivity. In Matthews KA, Weiss SM, Detre T, Dembroski TM, Falkner B, Manuck SB, Williams RB Jr (Eds), *Handbook of Stress, Reactivity, & Cardiovascular Disease*. New York: Wiley, 1986, pp. 187-203.
7. Goldstein DS. Sample handling and preparation for liquid chromatography and electrochemical assays for plasma catecholamines. In Krstulovic AM (Ed), *Quantitative Analysis of Catecholamines and Related Compounds*. New York: Wiley, 1986, pp. 126-135.

1987

8. Goldstein DS. Catecholamines in plasma and cerebrospinal fluid: Sources and meanings. In Buckley JP, Ferrario CM (Eds), *Brain Peptides and Catecholamines in Cardiovascular Regulation in Normal and Disease States*. New York: Raven, 1987, pp. 15-25.
9. Jimerson DC, George DT, Kaye WH, Brewerton TH, Goldstein DS. Norepinephrine dysregulation in the syndrome of bulimia. In Hudson JI, Pope HG Jr (Eds), *Psychobiology of Bulimia*. New York: American Psychiatric Press, 1987, pp. 147-156.
10. Goldstein DS. Stress-induced activation of the sympathetic nervous system. In Grossman A (Ed), *Neuroendocrinology of Stress*. East Sussex, England: Bailliere Tindall, 1987, pp. 253-278.

1988

11. Goldstein DS, Kopin IJ. Plasma norepinephrine as an index of sympathetic neuronal function in health and disease. In Saito E (Ed), *Progress in Hypertension*. (Vol. I). Neurotransmitters as Modulators of Blood Pressure. Utrecht, Holland: VNU Science Press, 1988, pp. 65-87.
12. Goldstein DS. New techniques in the clinical assessment of sympathetic activity using plasma catechols. In Belmaker RH, Sandler M, Dahlstrom A (Eds), *Progress in Catecholamine Research. Part C: Clinical Aspects*. New York: AR Liss, 1988, pp. 101-108.
13. Kopin IJ, Eisenhofer G, Goldstein DS. Sympathoadrenal medullary system and stress. In Chrousos GP, Loriaux DL, Gold PW (Eds), *Mechanisms of Physical and Emotional Stress*. New York: Plenum, 1988, pp. 11-23.
14. Goldstein DS, Chadwick R, Keiser HR. Modulation of the brachial arterial waveform in aging and hypertension. In Brun P, Chadwick RS, Levy BI (Eds), *Cardiovascular Dynamics and Models*, Paris, 1988, pp. 353-362.

1989

15. Kopin IJ, Eisenhofer G, Goldstein D. Adrenergic response following recognition of stress. In *Molecular Biology of Stress*. New York: A.R. Liss, Inc, 1989, pp.123-132.

1990

16. Goldstein DS, Kopin IJ. The autonomic nervous system and catecholamines in normal blood pressure control and in hypertension. In Laragh JH, Brenner BM (Eds) *Hypertension: Pathophysiology, Diagnosis and Management*. New York: Raven, 1990, pp. 711-747.
17. Goldstein DS. Physiology of the adrenal medulla and the sympathetic nervous system. In Becker KL (Ed.), *Principles and Practice of Endocrinology and Metabolism*. New York: Lippincott, 1990, pp. 668-676.

1991

18. Goldstein DS. Relationship between plasma levels of catechols and sympathoneural activity. In Ganguly PK (Ed.), *Catecholamines and Heart Disease*. Boca Raton, FL: CRC Press, 1991, pp. 45-71.

1992

19. Goldstein DS. Clinical uses of catechols in the assessment of sympathoadrenal activity in stress and disease. In Kvetnansky R, McCarty R, Axelrod J (Eds.) *Stress: Neuroendocrine and Molecular Approaches*. New York: Gordon and Breach Science Publishers, 1992, pp. 893-913.
20. Kvetnansky R, Fukuhara K, Weise VK, Armando I, Kopin IJ, Goldstein DS. Stress-induced changes of plasma dopa levels depend on sympathetic activity and tyrosine hydroxylation. In Kvetnansky R, McCarty R, Axelrod J (Eds.) *Stress: Neuroendocrine and*

Molecular Approaches. New York: Gordon and Breach Science Publishers, 1992, pp. 139-158.

21. Pacak K, Armando I, Kvetnansky R, Palkovits M, Goldstein DS, Kopin IJ. Stress-induced changes in norepinephrine, dihydroxyphenylglycol and 3,4-dihydroxyphenylacetic acid in the hypothalamic paraventricular nucleus of conscious rats. In Kvetnansky R, McCarty R, Axelrod J (Eds.) Stress: Neuroendocrine and Molecular Approaches. New York: Gordon and Breach Science Publishers, 1992, pp. 93-98.
22. Goldstein DS. Central catecholamines and the control of sympathetic tone. In Kunos G, Ciriello J (Eds.) Central Neural Mechanisms in Blood Pressure Regulation. Boston: Birkhauser, 1992, pp. 113-208.

1993

23. Goldstein DS. Autonomic Nervous Dysfunction in Essential Hypertension. In Izzo JL Jr, Black HR (Eds.) Hypertension Primer. Dallas, TX: Council for High Blood Pressure Research, American Heart Association, 1993, pp. 61-63.

1994

24. Goldstein DS. Stress and science. In Cameron OG (Ed.) Adrenergic Dysfunction and Psychobiology, New York: APA Press, 1994, pp. 179-236.

1995

25. Goldstein DS. Stress and science. In Goldstein DS. Stress, Catecholamines, and Cardiovascular Disease. New York: Oxford University Press, 1995, pp. 3-55.
26. Goldstein DS. The fact of organization. In Goldstein DS. Stress, Catecholamines, and Cardiovascular Disease. New York: Oxford University Press, 1995, pp. 56-102.
27. Goldstein DS. Peripheral catecholaminergic systems. In Goldstein DS. Stress, Catecholamines, and Cardiovascular Disease. New York: Oxford University Press, 1995, pp. 103-163.
28. Goldstein DS. Control of sympathetic outflow and functions of central catecholamines. In Goldstein DS. Stress, Catecholamines, and Cardiovascular Disease. New York: Oxford University Press, 1995, pp. 164-233.
29. Goldstein DS. Clinical assessment of catecholaminergic function. In Goldstein DS. Stress, Catecholamines, and Cardiovascular Disease. New York: Oxford University Press, 1995, pp. 234-286.
30. Goldstein DS. Stress response patterns. In Goldstein DS. Stress, Catecholamines, and Cardiovascular Disease. New York: Oxford University Press, 1995, pp. 287-328.
31. Goldstein DS. Stress and catecholaminergic function in cardiovascular diseases. In Goldstein DS. Stress, Catecholamines, and Cardiovascular Disease. New York: Oxford University Press, 1995, pp. 329-392.
32. Goldstein DS. Current opinions and future directions. In Goldstein DS. Stress, Catecholamines, and Cardiovascular Disease. New York: Oxford University Press, 1995, pp. 393-411.

33. Goldstein DS. Physiology of the adrenal medulla and the sympathetic nervous system. In Becker KL (Ed.), *Principles and Practice of Endocrinology and Metabolism*. New York: Lippincott, 1995, pp. 753-762.

1996

34. Goldstein DS. Noradrenergic neurotransmission. In Robertson D, Low PA, Polinsky RJ (Eds.), *A Primer on the Autonomic Nervous System*. New York: Academic Press, 1996, pp. 91-98.
35. Goldstein DS, Pacak K, Kopin IJ. Nonspecificity versus primitive specificity of stress responses. In McCarty R, Aguilera G, Sabban EL, Kvetnansky R (Eds.) *Stress: Molecular Genetic and Neurobiological Advances*. Amsterdam: Harwood Academic Publishers, 1996, pp. 3-20.
36. Pacak K, Makino S, Palkovits M, Kvetnansky R, Kopin IJ, Goldstein DS. Immobilization-induced norepinephrine release in the paraventricular nucleus and the central nucleus of the amygdala: Association with corticotropin-releasing hormone gene expression. In McCarty R, Aguilera G, Sabban EL, Kvetnansky R (Eds.) *Stress: Molecular Genetic and Neurobiological Advances*. Amsterdam: Harwood Academic Publishers, 1996, pp. 49-66.
37. Kvetnansky R, Pacak K, Nankova B, Fukuhara K, Goldstein DS, Sabban EL, Kopin IJ. Peripheral catecholamine synthesis, release, and metabolism during stress: Acute versus chronic effects of hypercortisolemia. In McCarty R, Aguilera G, Sabban EL, Kvetnansky R (Eds.) *Stress: Molecular Genetic and Neurobiological Advances*. Amsterdam: Harwood Academic Publishers, 1996, pp. 243-265.
38. Goldstein DS. Stress, catecholamines, and cardiovascular disease. In McCarty R, Aguilera G, Sabban EL, Kvetnansky R (Eds.) *Stress: Molecular Genetic and Neurobiological Advances*. Amsterdam: Harwood Academic Publishers, 1996, pp. 833-862.
39. Eisenhofer G, Pacak K, Goldstein DS, McCarty R. Neuronal uptake and sympathoadrenal release of catecholamines in aged rats. In McCarty R, Aguilera G, Sabban EL, Kvetnansky R (Eds.) *Stress: Molecular Genetic and Neurobiological Advances*. Amsterdam: Harwood Academic Publishers, 1996, pp. 949-965.

1998

40. Goldstein DS. Preface. In Goldstein DS, Eisenhofer G, McCarty R (Eds.) *Catecholamines: Bridging Basic Science with Clinical Medicine*. Academic Press 1998, pp. xli-xliii.
41. Goldstein DS. Catecholamines in the periphery. In Goldstein DS, Eisenhofer G, McCarty R (Eds.) *Catecholamines: Bridging Basic Science with Clinical Medicine*. Academic Press 1998, pp. 529-539.
42. Goldstein DS. Catecholamine receptors and signal transduction. In Goldstein DS, Eisenhofer G, McCarty R (Eds.) *Catecholamines: Bridging Basic Science with Clinical Medicine*. Academic Press, 1998, pp. 379-390.
43. Goldstein DS. Novel catecholaminergic systems. In Goldstein DS, Eisenhofer G, McCarty R (Eds.) *Catecholamines: Bridging Basic Science with Clinical Medicine*. Academic Press, 1998, pp. 819-824.

44. Goldstein DS, Holmes C, Cannon RO III, Eisenhofer G, Kopin IJ. Sympathetic cardioneuropathy in dysautonomias. In Goldstein DS, Eisenhofer G, McCarty R (Eds.) *Catecholamines: Bridging Basic Science with Clinical Medicine*. Academic Press, 1998, pp. 615-619.
45. Kvetnansky R, Pacak K, Sabban EL, Kopin IJ, Goldstein DS. Stressor specificity of peripheral catecholaminergic activation. In Goldstein DS, Eisenhofer G, McCarty R (Eds.) *Catecholamines: Bridging Basic Science with Clinical Medicine*. Academic Press, 1998, pp. 556-564.
46. Pacak K, Baffi JS, Kvetnansky R, Goldstein DS, Palkovits M. Stressor-specific activation of central catecholaminergic systems: Implications for stress-related hypothalamic-pituitary-adrenocortical responses. In Goldstein DS, Eisenhofer G, McCarty R (Eds.) *Catecholamines: Bridging Basic Science with Clinical Medicine*. Academic Press, 1998, pp. 561-564.
47. Kaler SG, Holmes CS, Goldstein DS. Dopamine-beta-hydroxylase deficiency associated with mutations in a copper transporter gene. In Goldstein DS, Eisenhofer G, McCarty R (Eds.) *Catecholamines: Bridging Basic Science with Clinical Medicine*. Academic Press, 1998, pp. 66-68.
48. Lenders JWM, Jacobs MC, Thien T, Goldstein DS. Catecholamines and neurocardiogenic syncope. In Goldstein DS, Eisenhofer G, McCarty R (Eds.) *Catecholamines: Bridging Basic Science with Clinical Medicine*. Academic Press, 1998, pp. 607-610.
49. Breier A, Elman I, Goldstein DS. Norepinephrine and schizophrenia: A new hypothesis for antipsychotic drug action. In Goldstein DS, Eisenhofer G, McCarty R (Eds.) *Catecholamines: Bridging Basic Science with Clinical Medicine*. Academic Press, 1998, pp. 785-788.
50. Axelrod FB, Goldstein DS, Holmes C, Kopin IJ. Genotype and phenotype in familial dysautonomia. In Goldstein DS, Eisenhofer G, McCarty R (Eds.) *Catecholamines: Bridging Basic Science with Clinical Medicine*. Academic Press, 1998, pp. 925-928.

In Press

51. Goldstein DS, Pacak K. CNS monoamines and the response to environmental challenge. In McEwen BS (Ed.) *Handbook of Physiology. Coping with the Environment*. New York: Oxford Univ. Press.
52. Goldstein DS, Eisenhofer G. Sympathetic nervous system physiology and pathophysiology in coping with the environment. In McEwen BS (Ed.) *Handbook of Physiology. Coping with the Environment*. New York: Oxford Univ. Press.
53. Goldstein DS. Clinical pharmacology of the autonomic nervous system. In Appenzeller O (Ed.) *The Autonomic Nervous System. Handbook of Clinical Neurology*.
54. Goldstein DS. Epinephrine and norepinephrine. *Encyclopedia of Life Sciences*. London: Macmillan Reference Limited.